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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/714,747	11/16/2000	Andrew J. Hazelton		5191

7590 09/17/2002  
Steven G Roeder  
5560 Chelsea Avenue  
San Diego, CA 92037

EXAMINER

ESPLIN, DAVID B

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 09/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/714,747

Applicant(s)

HAZELTON ET AL.

Examiner

D. Ben Esplin

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 November 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-89 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15, 17, 18, 20, 22-26, 35-40, 42-47, 49, 51-55, 64-76 and 78-89 is/are rejected.
- 7) ☒ Claim(s) 16, 19, 21, 27-34, 41, 48, 50, 56-63 and 77 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) ✓
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 ✓
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Response to Arguments***

Applicant's arguments with respect to the restriction made by Examiner are found to be persuasive. Claims 1-89 are herein examined under Group I.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Art Unit: 2851

Claims 1, 4, 6, 8-11, 13-15, 17, 18, 20, 22-26, 37-40, 42-47, 49, 51-55, 66-70, 72-76, and 78-88 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,408,045 to Matsui et al.

FIG. 1 of Matsui shows a stage assembly adapted to move a device relative to a stage base including, a stage (main stage 5), a stage mover assembly (linear motors 51 and 54) for moving the stage with two degrees of freedom, and a reaction mass assembly (Y mass members 23 and X mass members 27) adapted to reduce the reaction forces in two degrees of freedom that are transferred to the stage base. The two degrees of freedom in which the stage is driven and the reaction forces are reduced are along an X axis and a Y axis. The reaction mass assembly includes an X component made up of a first X reaction mass and a second X reaction mass, and moves along the X axis on X mass guides 28 as a result of the stage being driven along the X axis. When the stage is driven along the Y axis a Y component of the reaction mass system, including a first Y reaction mass and a second Y reaction mass, is also moved along the Y axis to cancel reaction forces in the Y direction. The X component of the reaction mass assembly is also carried along the Y axis as the stage is driven in the Y direction. The X component includes a reaction mass mover assembly, which is not shown in the drawing, for adjusting the position of the reaction mass assembly relative to the stage base along the X axis (col. 5 lines 59-67). The Y component likewise includes a reaction mass mover assembly for adjusting the position of the reaction mass assembly (air cylinder 35 and pistons 31 and 33).

Referring to claims 37 and 66, the stage assembly of Matsui is disclosed for use in an exposure apparatus (col. 1 lines 5-13).

Art Unit: 2851

Referring to claims 38, 39, 67, and 68, the exposure apparatus taught in Matsui is for manufacturing devices such as wafers with lithographically exposed images.

Referring to claim 69, 70, 72-76, and 78-87, the above stated structure and function of Matsui would inherently lead to the method steps recited in these claims.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 2, 3, 5, 7, 12, 71, and 89 rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,969,441 to Loopstra.

FIG. 2 of Loopstra shows a stage assembly including a first stage (first substrate holder 11), a stage mover assembly (X actuator 39, Y actuator 41, and rotatable unit 65) for moving the stage with three degrees of freedom, and a reaction mass assembly (balancing unit 69) which reduces the reaction forces created by the stage mover assembly in at least the same three degrees of freedom. Loopstra also shows a reaction mover assembly (springs 91, 93, and 95) that adjusts the position of the reaction mass assembly. FIG. 2 further includes a second stage (second substrate holder 13) and a second stage mover assembly (X actuator 41, Y actuator 45, and rotatable unit 65).

Referring to claims 71 and 77, the above stated structure and function of Loopstra would inherently lead to the method steps recited in these claims.

Art Unit: 2851

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 35, 36, 64, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsui as applied to claims 1, 4, 6, 8-11, 13-15, 17, 18, 20, 22-26, 37-40, 42-47, 49, 51-55, 66-70, 72-76, and 78-88 above, and further in view of U.S. Patent No. 5,991,005 to Horikawa et al.

Although Matsui is silent concerning a stage including a device table including an upper table and a lower table capable of positioning the upper table with six degrees of freedom, FIG. 2 of Horikawa shows a device table disposed on a simple XY stage, like the one described in Matsui (col. 9 lines 3+). Therefore, it would have been obvious to include a device table on the stage assembly of Matsui in order to overcome any irregularities in the positioning or surface of the stage assembly (col. 3 line 56 – col. 4 line 9 of Horikawa).

***Allowable Subject Matter***

Claims 16, 19, 21, 27-34, 41, 48, 50, 56-63, and 77 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

A reaction mover assembly for positioning a Y reaction component and an X reaction component with three degrees of freedom is not found in the prior art.

Art Unit: 2851

A reaction mass assembly including an X component of two spaced apart X reaction masses and a Y reaction component shaped as a generally planar reaction base or a reaction frame is not shown in the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,271,606 to Hazelton discloses a stage assembly with a reaction mass assembly actuatable in three degrees of freedom.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Ben Esplin whose telephone number is (703) 305-4022. The examiner can normally be reached on Mon.-Fri. (8am-4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on (703) 308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 308-7382 for After Final communications.

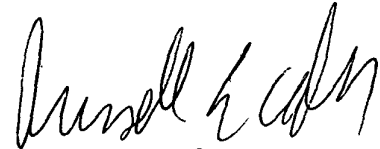
Art Unit: 2851

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

~~DBE~~

DBE

September 11, 2002



RUSSELL ADAMS  
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